FILE 'MEDLINE, BIOSIS, EMBASE, CAPLUS, LIFESCI' ENTERED AT 11:50:01 ON 12 AUG 2004

L1 200 S BIOMONITOR AND (WATER OR AQUATIC) AND FISH
L2 0 S L1 AND TRANSGEN?
L3 38 S AROMATIC (A) HYDROCARBON (A) RESPONSE (A) ELEMENT
L4 15 DUP REM L3 (23 DUPLICATES REMOVED)

FILE 'STNGUIDE' ENTERED AT 11:53:09 ON 12 AUG 2004

FILE 'MEDLINE, BIOSIS, CAPLUS' ENTERED AT 11:57:56 ON 12 AUG 2004

FILE 'STNGUIDE' ENTERED AT 11:57:56 ON 12 AUG 2004

FILE 'MEDLINE, BIOSIS, CAPLUS' ENTERED AT 12:06:17 ON 12 AUG 2004

FILE 'STNGUIDE' ENTERED AT 12:06:18 ON 12 AUG 2004

FILE 'MEDLINE, BIOSIS, EMBASE, CAPLUS, LIFESCI' ENTERED AT 12:08:48 ON 12 AUG 2004

L5 47 S ARNT1
L6 19 DUP REM L5 (28 DUPLICATES REMOVED)
L7 462 S ACE1
L8 134 S L7 AND ELEMENT
L9 398 S L7 AND GENE
L10 117 S ACE1 (A) GENE

TI Green fluorescent protein (GFP) as a marker of aryl hydrocarbon receptor (AhR) function in developing zebrafish (Danio rerio).

CM Comment in: Environ Health Perspect. 2002 Jan;110(1):A15. PubMed ID: 11813700

AU Mattingly C J; McLachlan J A; **Toscano W A Jr**

CS Interdisciplinary Program in Molecular Cellular Toxicology, Tulane University, Center for Bioenvironmental Research, New Orleans, Louisiana, USA.

SO Environmental health perspectives, (2001 Aug) 109 (8) 845-9. Journal code: 0330411. ISSN: 0091-6765.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200201

ED Entered STN: 20010924
Last Updated on STN: 20020911
Entered Medline: 20020125

AB We developed an inducible in vivo reporter system to examine expression of the aryl hydrocarbon receptor (AhR) during development in zebrafish (Danio rerio). AhR is a ligand-activated transcription factor that mediates the toxic actions of environmental contaminants such as 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Induction of cytochrome P4501A1 (CYP1A1) is an early biomarker of AhR activation. A 1905 base pair region of the human CYP1A1 promoter/enhancer region was regulated by AhR in zebrafish liver cells after exposure to TCDD (10 nM) in a transient transfection assay. This regulatory region was fused to the cDNA sequence encoding green fluorescent protein (GFP) of jellyfish (Aequorea victoria). **Transgenic** zebrafish were generated to express this AhR-regulated GFP construct. Injected fish exposed to TCDD exhibited induction of GFP in the eye, nose, and vertebrae of zebrafish embryos (48 and 72 hr after fertilization) compared to vehicle controls (DMSO), which did not express GFP. To investigate whether AhR-regulated GFP expression correlated with sites of TCDD toxicity, we exposed wild-type zebrafish to DMSO or TCDD and examined them for morphologic abnormalities. By 5 days after fertilization, TCDD-exposed fish exhibited gross dysmorphogenesis in cranio-facial and vertebral development.